



## Section 13: Review of Alternatives



## Overview of Alternatives

November 5, 1997

The alternative conservation plans assessed here vary primarily in the extent of Palco's old growth redwood groves that are released for harvest and are presented in roughly increasing order of conservation. Two of the alternatives, HCP97 and Core/Toggle identify land that would be deferred from harvest for an initial period of time and then may be made available for harvest.

Number	Alternative	Description
1	HCP Dee 96	Headwaters proposed purchase reserved, no additional area
2	IA Apr 97	Headwaters reserved and 21 occupied MAMU stands buffered and reserved
3	IA Aug 97	Headwaters reserved and 17 occupied MAMU stands buffered and reserved, along with all old growth residuals in critical habitat
4	IA MCA	Headwaters reserved, 5 MAMU conservation units and buffers adjoining oldgrowth redwood on public land
5	HCP Aug 97	Headwaters reserved and 7 MAMU stands deferred
6	HCP Core/Toggle	Headwaters reserved, 4 occupied MAMU stands, 1 residual area and an additional choice of 1 of three 'toggle areas' deferred

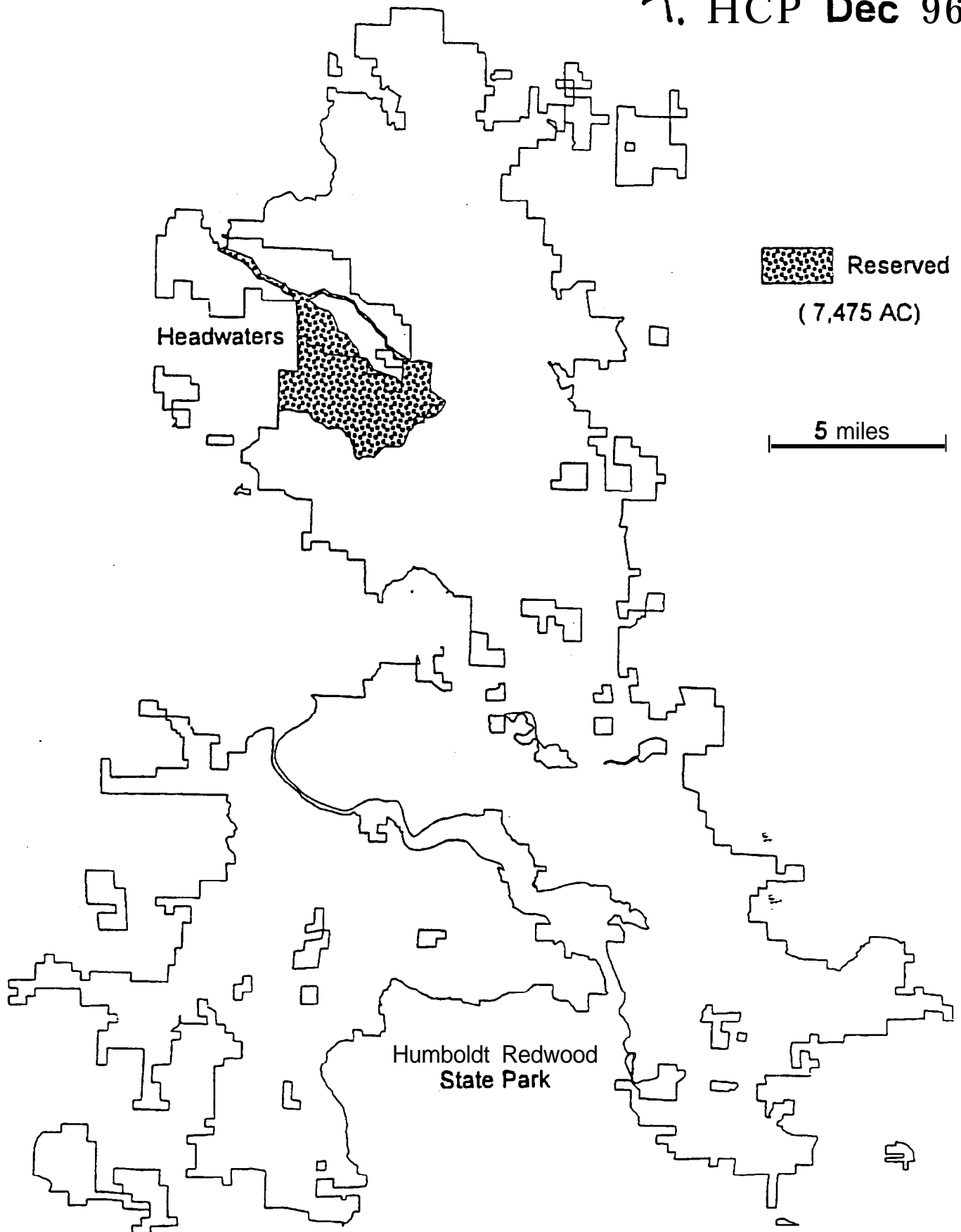
### Notes:

deferred = harvest decision to be made after 3 - 5 years  
toggle area = a configuration of uncut and/or residual areas which would be deferred from cut for 3-5 years  
IA = Interagency technical staff  
HCP = Palco derived alternative

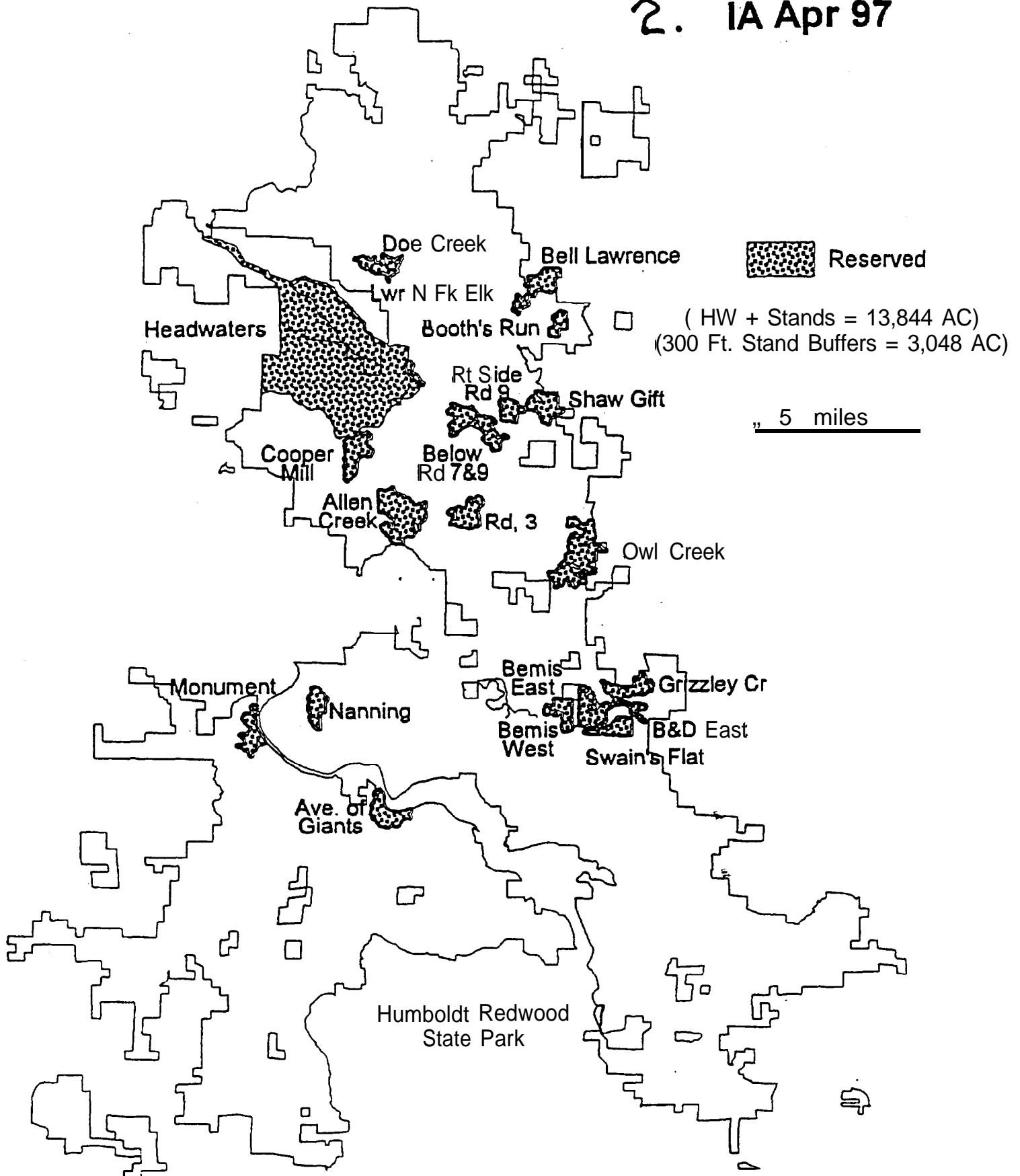
10/20/97



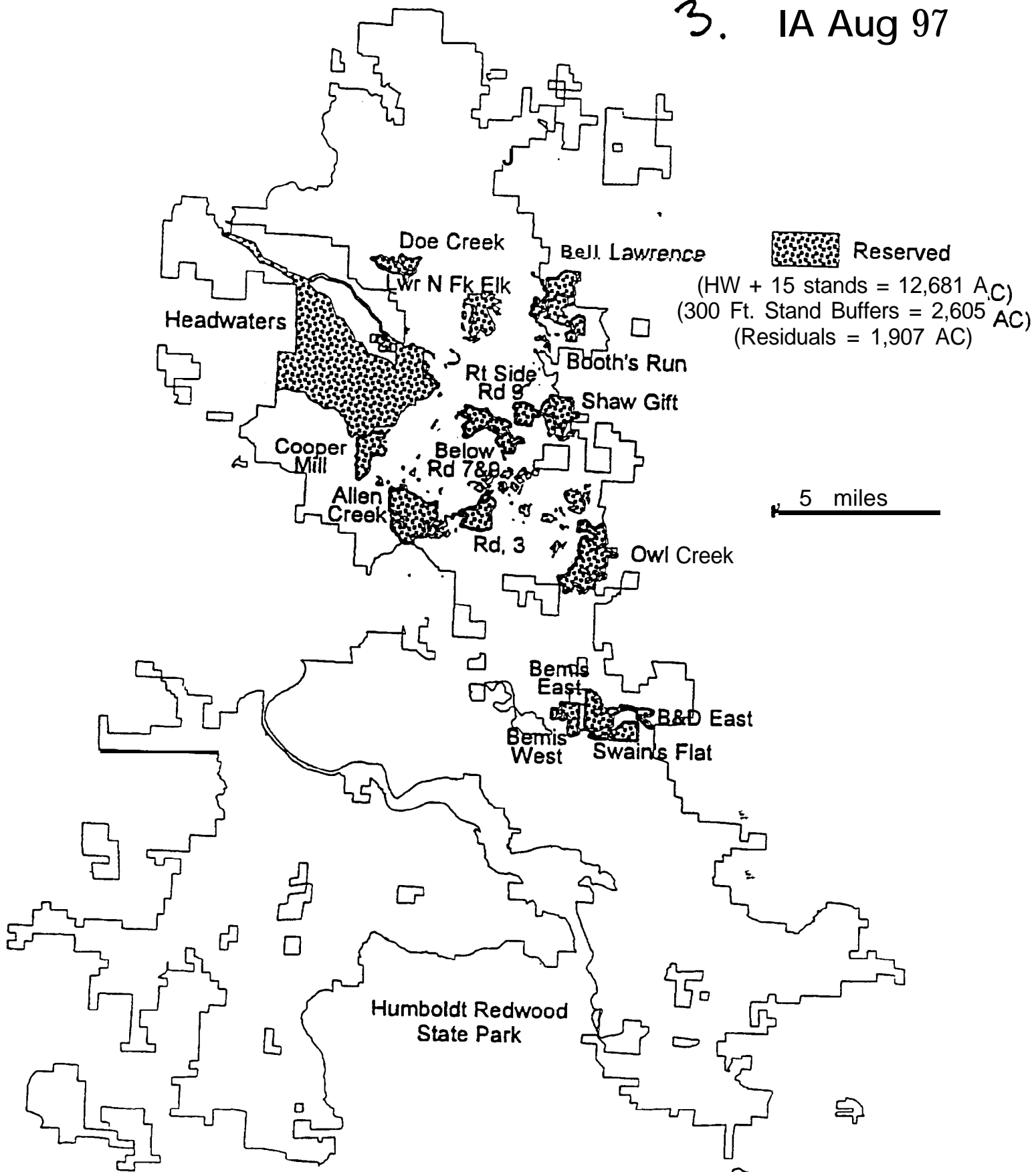
# 1. HCP Dec 96



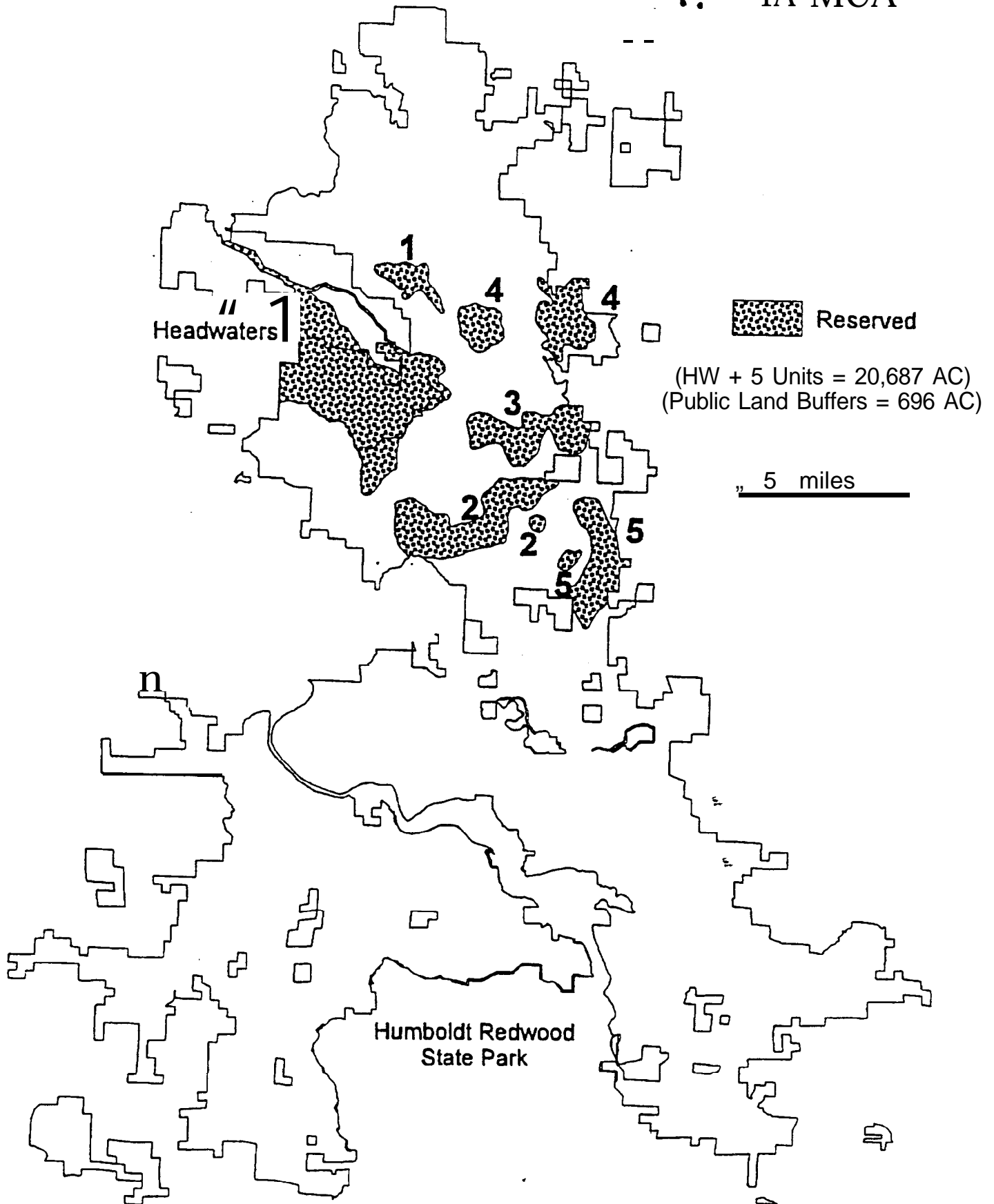
2. 1A Apr 97



3. IA Aug 97

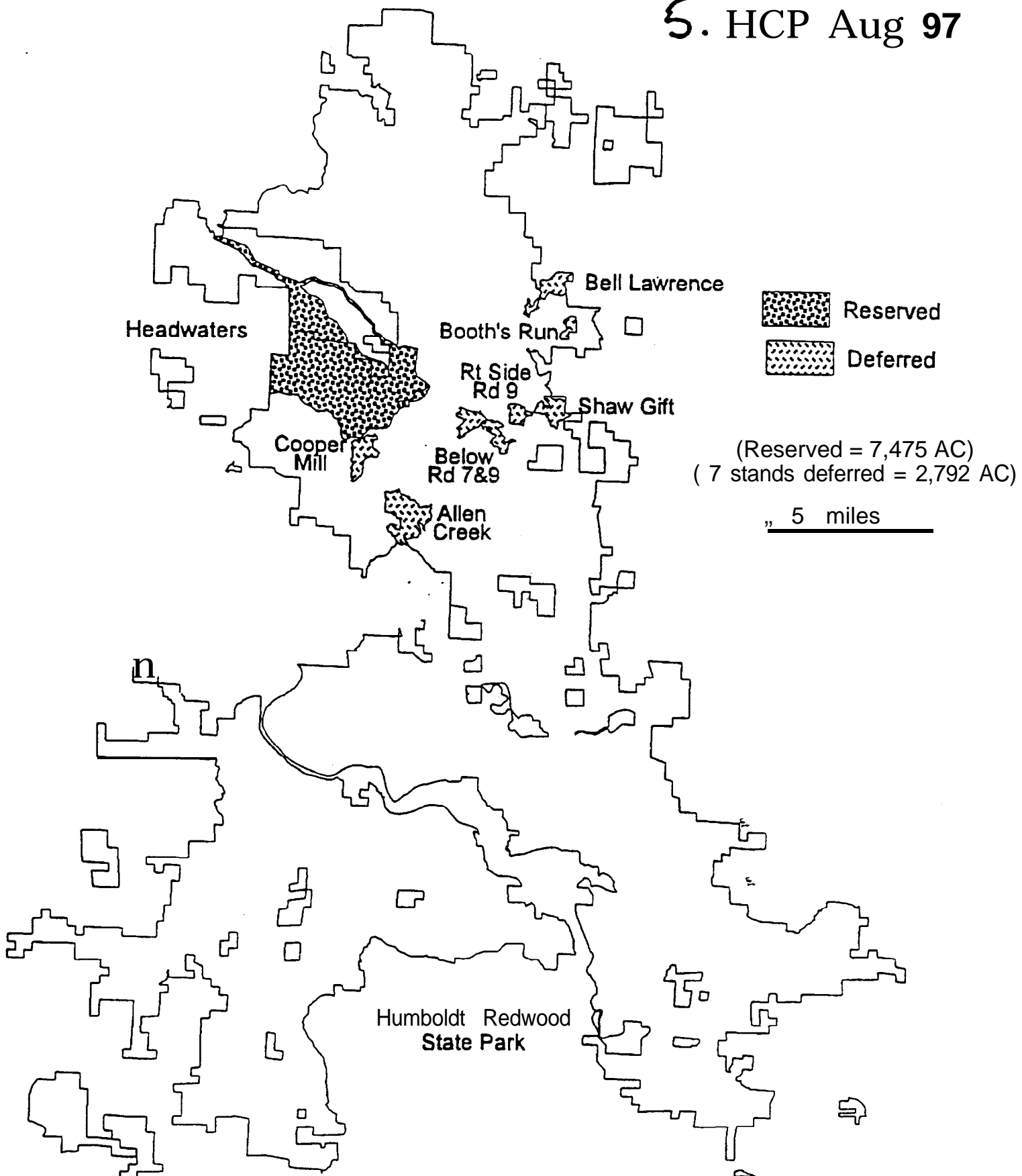


# 4. IA MCA

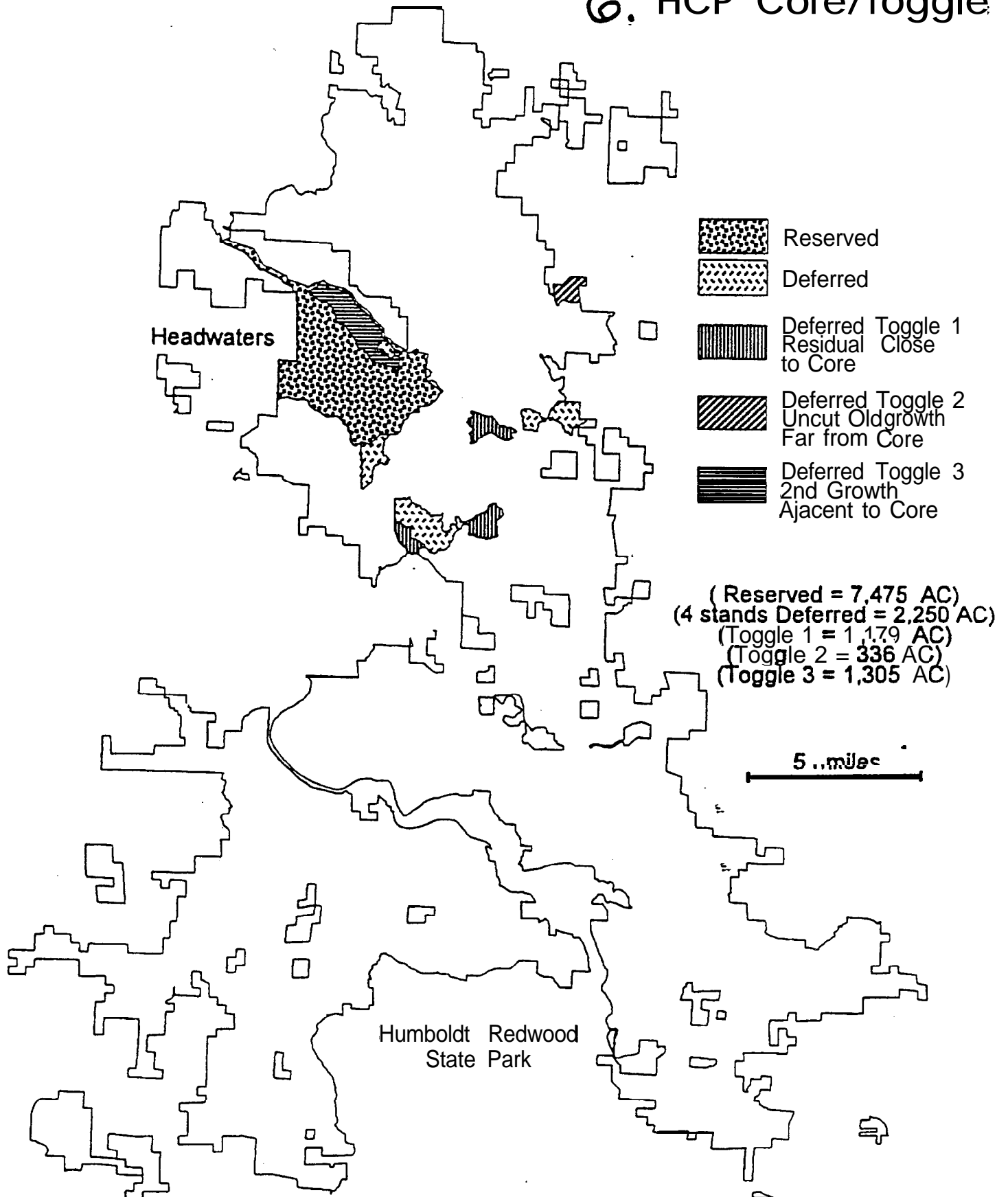




5. HCP Aug 97



## 6. HCP Core/Toggle



# 1. Comparison of Conservation Plan Alternatives

## A. Area and Timber Volume In Reserve Status

		Area (acres)				Timber Volume (MMbf)			
Alternative		Uncut OG Redwood	OG <i>Redwood</i> Residual	Old Growth Doug Fir	Second Growth	Total Area	OG Redwood	Other Timber	Total Volume
Current Conditions		5,163	12,887	8,700	183,261	210,011	1,420	2,663	4,083
1	HCP Dec 96								
	Headwaters Purchase	3,117	,665	0	3,693	7,475	577	218	795
2	IA Apr 97								
	Headwaters Purchase	3,117	665	0	3,693	7,475	577	218	795
	Stands	1,714	4201	153	302	6,369	377	160	537
	Buffers	14	111	6	2,918	3,048	10	35	45
	Total	4,845	4,977	158	6,912	16,893	964	413	1,377
3	IA Aug 97								
	Headwaters Purchase	3,117	665	0	3,693	7,475	577	218	795
	Stands	1,565	3941	153	247	5,206	322	145	467
	Stand Buffers	10	97	6	2,493	2,605	8	24	32
	Old Growth Crit. Hab.	0	1,902	0	0	1,902	69	17	86
	Total	4,692	5,906	158	6,432	17,189	976	404	1,380
4	IA MCA								
	Headwaters Purchase	3,117	665	0	3,693	7,475	577	218	795
	Stands	1,530	4,330	240	7,112	13,212	371	183	554
	Park Buffers	28	176	10	481	696	9	10	18
	Total	4,675	5,172	250	11,286	21,383	957	411	1,367
5	HCP Aug 97								
	Headwaters Purchase	3,117	665	0	3,693	7,475	577	218	795
	Deferred	1,058	1,458	140	136	2,792	200	88	289
	Total	4,176	2,123	140	3,829	10,267	777	306	1,084
6	HCP Core Toggle								
	Headwaters Purchase	3,117	665	0	3,693	7,475	577	218	795
	Offered Core	719	1,047	31	447	2,245	138	54	192
	Deferred T1	28	850	0	301	1,179	35	20	55
	Deferred T2	274	33	0	29	336	40	15	55
	Deferred T3	0	1	0	1,305	1,306	2	23	25
	Core plus T1	3,865	2,563	31	4,441	10,900	751	292	1,042
	Core plus T2	4,110	1,746	31	4,169	10,056	756	287	7,042
	Core plus T3	3,837	1,714	31	6,445	11,026	718	295	1,012
	Core plus all Toggles	4,138	2,597	31	5,775	12,542	793	330	1.122

# 1. Comparison of Conservation Plan Alternatives

## B. Area and Timber Volume in Reserve Status as Percent of Current Conditions

Alternative	Area (acres)					Timber Volume (MMbf)		
	Uncut OG Redwood	OG Redwood Residual	Old Growth Doug fir	Second Growth	Total Area	OG Redwood	Other Timber	Total Volume
<b>Current Conditions</b>	5,163	12,887	8,700	183,261	210,011	1,420	2,663	4,083
<b>1 HCP Dec 96</b>								
Headwaters Purchase	60%	5 %	0 %	2 %	4 %	41%	8 %	19%
<b>2 IA Apr 97</b>								
Headwaters Purchase	60%	5 %	0 %	2 %	4 %	41%	8 %	19%
Stands	33%	33%	2 %	0 %	3%	27 %	6 %	13%
Buffers	0 %	1 %	0 %	2 %	1%	1 %	1 %	1%
Total	94%	39%	2 %	4 %	8 %	68%	16%	34%
<b>3 IA Aug 97</b>								
Headwaters Purchase	60%	5 %	0 %	2 %	4 %	41%	8 %	19%
Stands	30%	25%	2 %	0 %	2%	23%	5 %	11%
Stand Buffers	0 %	1 %	0 %	1 %	1%	1 %	1 %	1%
Old Growth Crit. Hab.	0 %	15%	0 %	0 %	1%	5 %	3 %	0%
Total	91%	46%	2 %	4 %	8 %	69%	15%	34%
<b>4 IAMCA</b>								
Headwaters Purchase	60%	5 %	0 %	2 %	4 %	41%	8 %	19%
Stands	30%	34%	3 %	4 %	6%	26%	7 %	14%
Park Suffers	1 %	1 %	0 %	0 %	0%	1 %	0 %	0%
Total	91%	40%	3 %	6 %	10%	67%	15%	33%
<b>5 HCP Aug97</b>								
Headwaters Purchase	60%	5 %	0 %	2 %	4 %	41%	8 %	19%
Deferred	20%	11%	2 %	0 %	1%	14%	3 %	7%
Total	81%	16%	2 %	2 %	5%	55%	12%	27%
<b>6 HCP Core Toggle</b>								
Headwaters Purchase	60%	5 %	0 %	2 %	4 %	41%	8 %	19%
Deferred Core	14%	8 %	0 %	0 %	1%	10%	2 %	5%
Deferred T1	1 %	7 %	0 %	0 %	1%	2 %	1 %	1%
Deferred T2	5 %	0 %	0 %	0 %	0%	3 %	1%	1%
Deferred T3	0 %	0 %	0 %	1%	1%	0 %	1%	1%
Core plus T1	75%	20%	0 %	2 %	5%	53%	71%	26%
Core plus T2	80%	14%	0 %	2 %	5%	53%	11%	26%
Core plus T3	74%	13%	0 %	3 %	5%	51%	11%	25%
Core plus all Toggles	80%	20%	0 %	3 %	6%	56%	12%	27%

# 1. Comparison of Conservation Plan Alternatives

## C. Area and Timber Volume Available for Harvest Plans for S-years\*

		Area (acres)					Timber Volume (MMbf)		
Alternative		Uncut OG Redwood	OG Redwood Residual	Old Growth Doug Fir	Second Growth	Total Area	OG Redwood	Other Timber	Total Volume
Current Conditions		6,163	<b>12, 887</b>	<i>8,700</i>	<b>183, 261</b>	<b>210, 011</b>	1,420	<i>2,663</i>	<i>4,083</i>
1	HCP Dec 96	2,046	12,222	8,700	179,569	202,536	843	<i>2,445</i>	<i>3,288</i>
2	IA Apr 97	318	7,910	<i>8,541</i>	<b>176, 349</b>	<b>193, 119</b>	456	2,249	<i>2,706</i>
3	IA Aug 97	472	6,981	8,641	<i>176, 829</i>	<i>192, 823</i>	444	2,259	<i>2,703</i>
4	IA MCA	<i>488</i>	7,715	<i>8,450</i>	<b>171, 975</b>	<b>188, 626</b>	464	<i>2,252</i>	2,716
5	HCP Aug97	988	10,764	8,560	<b>179, 433</b>	<b>199,744</b>	643	<i>2,356</i>	2,999
6	HCP Core Toggle								
	Core plus T1	1,299	<i>10,324</i>	8,669	<i>178,820</i>	199,772	670	<i>2,371</i>	<i>3,041</i>
	Core plus T2	<i>1,053</i>	<i>11,141</i>	8,669	179,092	109,955	665	<i>2,376</i>	<b>3,041</b>
	Core plus T3	<i>1,327</i>	<i>11,173</i>	8,889	<i>177,876</i>	198,985	703	<i>2,368</i>	<i>3,071</i>
	Core plus all Toggles	1,025	10,291	8,669	<b>177,486</b>	197,470	628	<i>2,333</i>	2,961

- Available for Timber Harvest Plans means that land and timber is not in a reserve area and may be planned for harvest. Actual harvest under THP's depends on restrictions of Calif. Forest Practices and extent of riparian buffers for aquatic species. Because old growth timber is found scattered as well as in old growth stands, not all old growth timber can be accessed in five-year period. Where timber is subject to THP, approximately 65% can be harvested at first entry, with subsequent harvest after five years.



## **Description of PL GIS Coverages**

11/4/97

Pacific Lumber's vegetation information is based on an independent third party inventory completed on January 1, 1986 by Harmon, Jensen, Wallen and Associates. The vegetation on the property was delineated into 100 major stand types from geometrically corrected stereo aerial photography by HJW's Paul Kirkendall a forest& with more than 40 years of forest inventory experience in California.

Updates have been made since 1986 to adjust for harvest and growth Updates were made on 1/1/88, 1/1/89, 1/1/90, 1/1/91, 1/1/92, 1/1/93, 1/1/94, 7/1/95 and 7/1/96. Thru the 7/1/95 update, all the updates were done by Hammon Jensen and Wallen. They retyped the harvested stands from stereo aerial photography. The 7/1/96 update was done using SPOT imagery for clearcuts and assumed post harvest stand types based on THP Silvicultural prescriptions for particular cuts. There has been no reinventory of the stands. Starting inventory was calculated by growing the original stands to 1/1/97 using amplified growth equations.

The GIS coverages provided to Thomas Reid Associates (TRA) reflect the inventory updated as of 7/1/96 with modifications fix changes that have occurred up until 10/1/97. One of the coverages provided to TRA is a volume acre coverage based on the major stand type polygons in the vegetation coverage. Within this coverage, polygons that contain Timber Harvest Plans (THP) that were completed or approved for harvest by the state since the last update on 7/1/96, were indicated as having no volume. In addition to the volume per acre coverage, a GIS coverage was provided that showed the locations of virgin old growth and residual old growth stand polygons. These polygons were attributed to indicate species (Redwood vs. Douglas Fir) and crown closure or density. Also, we provided a GIS coverage of all THPs that have been completed, approved or planned between the last update on 7/1/96 and 10/1/97.

We were unable to get any stand inventory information from Elk River Timber Company concerning their lands. We used stereo aerial photography from 1994 to delineate stands and assigned similar stand types from our stand list. No field plots were measured. Subsequently, Mason, Bruce and Girard (MBG) conducted a timber cruise and reported about 183 MMBF of timber on the parcel. This MBG inventory was far superior to our estimates. TRA has adjusted the inventory on the Elk River lands to reflect the MBG volumes.

